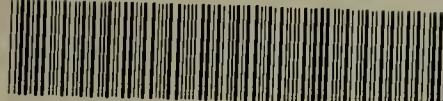


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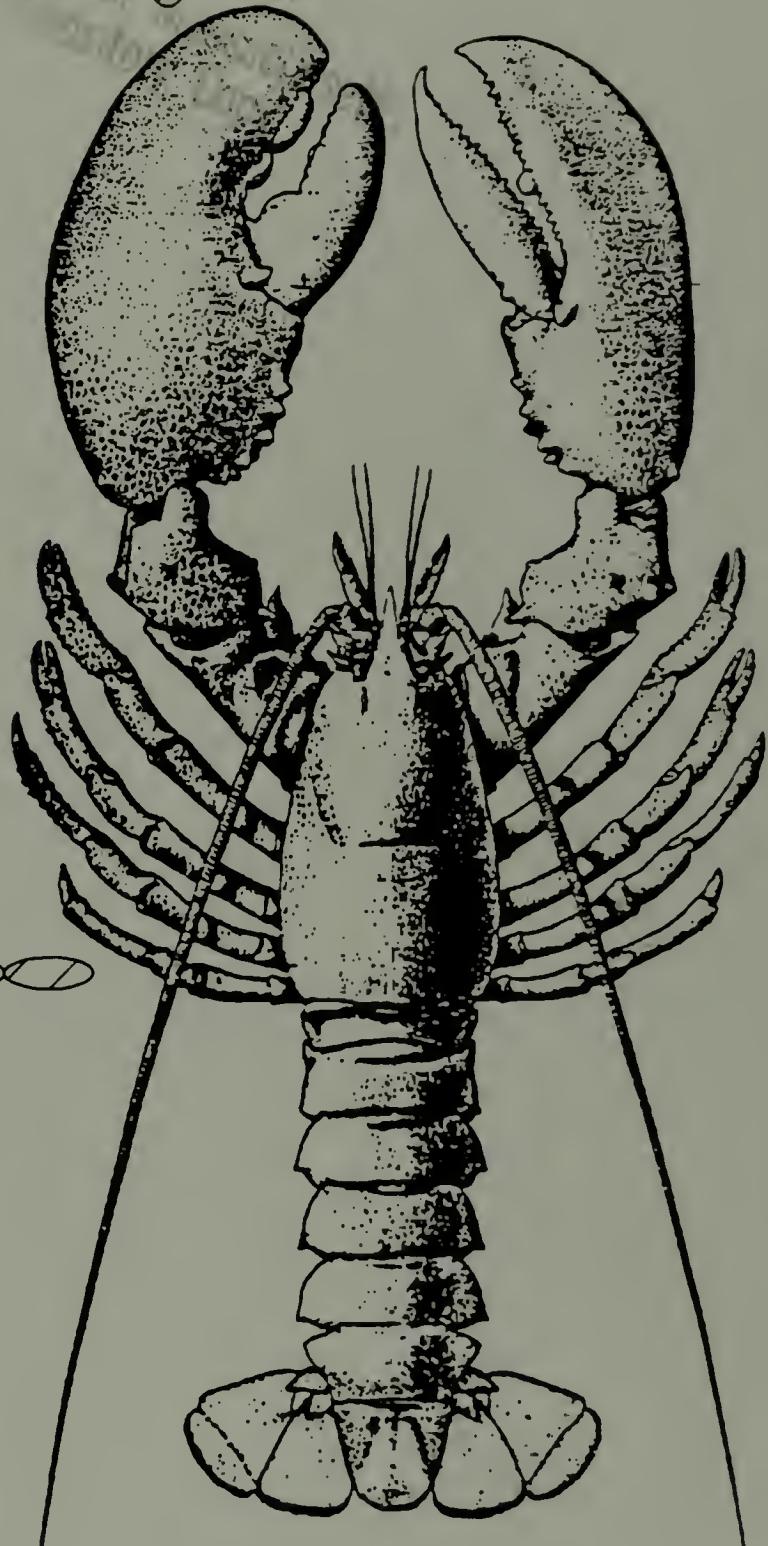


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1989

Massachusetts
Lobster Fishery
Statistics

Thomas B. Hoopes



MASSACHUSETTS
DIVISION OF MARINE FISHERIES

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1989
**MASSACHUSETTS
LOBSTER FISHERY
STATISTICS**

by
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Technical Series 24

A contribution of
Commercial Fisheries Research and Development
(P.L. 88-309) Project 3-IJ-29

**The Commonwealth of Massachusetts
Executive Office of Environmental Affairs
John P. DeVillars, Secretary
Department of Fisheries, Wildlife and Environmental Law Enforcement
Walter E. Bickford, Commissioner
Division of Marine Fisheries
Philip G. Coates, Director**

INTRODUCTION

The commercial lobster fishery of Massachusetts is, economically, the most important fishery conducted within the territorial waters of the Commonwealth. The overall economic importance of the fishery both in New England and, in recent years, the Mid-Atlantic states, has focused the attention of Federal, Regional and State fishery managers on this species. Initially, in an attempt to standardize management of the fishery, the Federal and State Governments developed an overall lobster fishery management plan under the auspices of the State-Federal Partnership Program. However, with the passage of the Fisheries Management and Conservation Act, the New England Fisheries Management Council, in cooperation with the Mid-Atlantic Council, has developed and implemented a management plan for the entire east coast lobster fishery. The basis and success of any such plan is an accurate statistical data base. The Commonwealth of Massachusetts, with joint funding from the National Marine Fisheries Service, has been collecting annual reports from licensed lobster fishermen for many years. Historically, the data collected was used primarily for descriptive and informational purposes, and occasionally for management. However, with the recent emphasis on Federal management, these data take on added importance in terms of providing the respective management agencies with adequate information to insure that the interests of Massachusetts' lobstermen are protected.

During the period 1975 - 1980, the number of coastal commercial lobster permits was limited, by law, to 1300, with an additional ten percent issued to proven hardship cases. In 1981, a statutory change provided for the establishment of a permanent waiting list from which 100 new permits were issued. In addition, 30 special additional permits were awarded to full time commercial fishermen who met certain criteria. In subsequent years 80 list permits and 20 special additional permits have been issued until 1988, when the issuance of new coastal permits was suspended. Permits which are not renewed are retired.

This report is the twenty - third annual publication of data summarized from catch reports submitted by licensed lobster fishermen. Data were presented in a standardized format through 1979. In 1980, presentation was changed to reflect a more thorough collection and evaluation of the submitted information. This publication represents the fourth year in which data processing and evaluation were completely computerized. It perpetuates the existing time series, and expands upon areas not addressed in previous years. All data elements presented in previous reports are presented here, although they may not be in the same tabular format. This report does not, however, cover the scope of the Project's existing database and computational capability. Requests for expanded information, or questions concerning this publication, should be made to the Division's Statistics Project in Salem, MA: (508) 745-3113.

This report has been prepared by personnel from the Division of Marine Fisheries Statistics and Data Processing Project, funded jointly by the Commonwealth and the National Marine Fisheries Service under the Commercial Fisheries Research and Development Act (Public Law 88-309). The preparation of this report would not have been possible without the cooperation of licensed

lobstermen who provided the information on their annual reports. Special thanks go to Ann Spires who continues, year after year, to interpret and keypunch the type of reports that fishermen are likely to fill out, and to Gerald Nash for his help in mainframe computing where the information is stored. Thanks also goes to Charles Anderson for his continual help with system development, upgrades and suggestions concerning this publication.

SOURCE OF DATA

No person may fish for or take lobster in coastal waters or land lobster in the Commonwealth without a permit issued by the Director of the Division of Marine Fisheries (Chapter 130, Mass. G.L., Section 38). Chapter 130, Mass. G.L., Section 33, requires any person so licensed to file an annual report of their catch by January 31 for the preceding calendar year. In 1980, a dual reporting system was established. Commercial lobstermen (coastal, offshore and seasonal(student)) received a detailed catch report form with their license renewal application. This report requests the following information: method of fishing; number and type of gear used; effort data (set-over days, number of trips per month, etc.); pounds of lobster caught; areas fished; principal ports of landing; and information relative to the vessels and traps used in the fishery. Recreational fishermen are asked to report on their license renewal application form the number of lobsters taken during the previous year and the maximum number of traps fished. Since the recreational licenses are processed throughout the year, an addendum will be published and inserted at a later date.

Project personnel sort, edit, tabulate and interpret data from all reports received. Data presented in this publication are based on catch reports actually received as of June 20, 1989, and are not expanded to represent all of the permits issued in 1989.

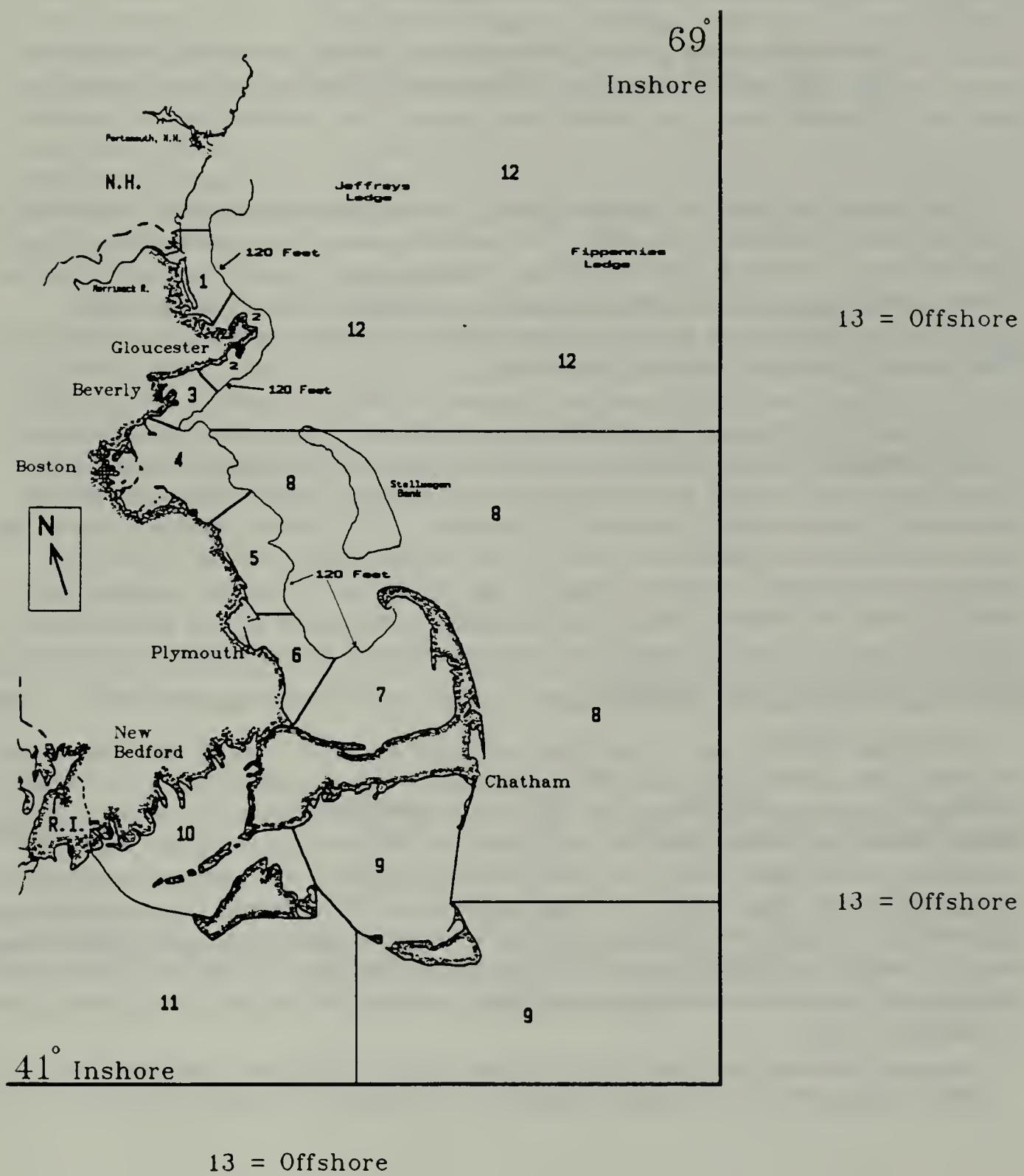
EXPLANATION OF TABLES

All data presented in this publication are broken down into two basic categories: the first is "inshore" which represents data pertaining to all lobster activity taking place within 69 degrees West Longitude and 41 degrees North Latitude (Areas 1-12 on Figure 1); the "offshore" category refers to all data outside those coordinates (Area 13 on Figure 1). This is *not* to be confused with the offshore license category which allows fishermen to harvest lobster outside the territorial waters line (approximately 3 miles from shore) only, a line that falls within the inshore category.

Figure 1. Location and Description of Coastal Lobster Fishing Areas in Massachusetts

Between Areas	Boundaries	Between Areas	Boundaries
1 & 2	Castle Neck, Ipswich	6 & 7	Scussett Beach, Sandwich
2 & 3	Goldsmith Point, Manchester	7 & 8	Griffin Island, Wellfleet
3 & 4	Red Rock, Lynn	8 & 9	Harwich/Chatham Line
4 & 5	Tobias Ledge (Spindle), Scituate	9 & 10	Waquoit Bay, Falmouth - Cape Pogue - Muskeget Island
5 & 6	High Pines Ledge, Plymouth	10 & 11	Mass./R.I. Line - Gay Head

Areas 1 - 12 = Inshore



Below is a brief definition of each lobster license type, both commercial and non-commercial, describing their entitlements.

Coastal Commercial: Allows the holder to harvest lobster anywhere, most importantly inside territorial waters.

Offshore Commercial: Allows the holder to harvest lobster outside territorial waters only.

Seasonal Commercial: Allows the holder, if he or she is a student to harvest lobster anywhere, but with a maximum of 25 traps and only during the months June - September.

Non-commercial: Allows the holder to harvest lobster anywhere but with a maximum of only 10 traps (if fishing traps) and cannot sell catch.

In all cases, the legal minimum size of a harvestable lobster was 3 1/4 inches in 1989, up from 3 7/32 inches in 1988. This was the second increase in size promulgated by the New England Fishery Management Council in cooperation with lobster producing states in New England and the Mid-Atlantic. If the plan continues as scheduled, it will set the minimum size at 3 5/16 inches by January of 1992 through two more 1/32 inch increases.

Tables presenting number of fishermen, number of pots fished, number and value of boats used in the fishery and total landings statewide, by county and license type, and for each city and town were prepared using the catch reports submitted by commercial fishermen. In keeping with Division policy, some of the data are masked or combined to protect the confidentiality of the individual submitting the report. Data referring to the number of fishermen, number and value of gear, and number and value of boats are presented by the home port of the licensee filing the report. Pounds of lobster harvested are presented by the port of landing reported by the fishermen.

Vessel and SCUBA gear values were calculated on the basis of the fishermen's estimate of its present value and the percentage of its use specifically for lobstering. Average values were used when the information was omitted from an individual report. When fishermen reported the number of lobsters taken, rather than poundage, a conversion factor of 1.27 pounds per lobster was used to calculate poundage figures. This figure is based on information collected by the Division's Commercial Lobster Investigations Project. For information on biological (average carapace length, sex ratios, percent of egg-bearing lobster in catch etc.) and other parameters (mortality and exploitation rates) contact this project in Sandwich, MA at (508) 888-1155.

Where tables refer to county, the reader is referred to Figure 14.

ISSUED LICENSES AND REPORTING STATUS

Table 1 lists the number of commercial licenses issued in 1989, the total value in terms of fees and the number that reported catching lobster. There were 2,638 commercial lobster licenses issued during 1989: 1,782 coastal commercial; 774 offshore commercial; 82 seasonal commercial. Non-commercial licenses issued totaled 13,008, a breakdown of their reporting status and landings can be found in the addendum.

As of Jun 20, 1989, a total of 144 licensed commercial lobstermen (5 percent) failed to file a catch report with the Division. Of the 2,494 commercial fishermen who reported, 773 or 29 percent claimed they did not catch any lobster during 1989. This is up slightly over 1988 when 27 percent claimed they did not catch lobster. In general this means they did not actually "fish", or target their efforts, for lobster, particularly in terms of the coastal license category. But because a good number of offshore license holders catch lobster incidentally, we have to qualify the question as actually "catching" or "not-catching" lobster. In any case, if one looks at the coastal license category in Table 2, they will see a 7 percent drop in the number of fishermen catching lobster and a 17 percent increase in those who did not as compared to 1988.

Table 2 shows a five year comparison of this type of information. It is interesting to note the slow decline of coastal licenses issued over the last two years as a result of the moratorium placed on the issuance of new license set in 1988. In addition, the number of offshore licenses catching lobster over the last five years has increased considerably, due mainly to the change in wording on the catch report which asked if they actually caught lobster rather than if they fished, or directed their efforts, for lobster.

Table 1. 1989 Massachusetts Commercial Lobster Fishery; Reporting Status of Licenses Issued

<u>License Type</u>	<u>Licenses Issued</u>	<u>Total Value</u>	<u>Reported "Catching Lobster"</u>		<u>Reported "No Lobster Catch"</u>		<u>Not Reporting</u>	
Coastal Commercial (\$ 260)	1,782	\$463,320	1,333	75%	422	24%	27	2%
Offshore Commercial (\$ 260)	774	\$201,240	339	44%	338	44%	97	13%
Seasonal (Student) Commercial (\$ 65)	82	\$5,330	49	60%	13	16%	20	24%
Total	2,638	\$669,890	1,721	65%	773	29%	144	5%

Non-Commercial figures unavailable at time of printing, an addendum will be inserted when information is available.

Table 2. Massachusetts Commercial Lobster Fishery; Selected Licensing Information, 1985 – 1989

	1985	1986	1987	1988	1989	Percent Five Year Change
<u>Coastal Licenses</u>						
Issued	1,744	1,803	1,877	1,832	1,782	2.18
% Change		3.38	4.10	-2.40	-2.73	
"Caught Lobster"	1,368	1,418	1,434	1,436	1,333	-2.56
% Change		3.65	1.13	0.14	-7.17	
"Did Not Catch Lobster"	349	359	409	362	422	20.92
% Change		2.87	13.93	-11.49	16.57	
Not Reporting	27	26	34	34	27	0.00
% Change		-3.70	30.77	0	-20.59	
Percent Not Reporting	2	1	2	2	2	
<u>Offshore Licenses</u>						
Issued	673	711	764	795	774	15.01
% Change		5.65	7.45	4.06	-2.64	
"Caught Lobster"	167	294	291	323	339	102.99
% Change		76.05	-1.02	11.00	4.95	
"Did Not Catch Lobster"	347	270	319	347	338	-2.59
% Change		-22.19	18.15	8.78	-2.59	
Not Reporting	159	147	161	125	97	-38.99
% Change		-7.55	9.52	-22.36	-22.40	
Percent Not Reporting	24	21	21	16	13	
<u>Seasonal (Student) Licenses</u>						
Issued	188	171	131	99	82	-56.38
% Change		-9.04	-23.39	-24.43	-17.17	
"Caught Lobster"	108	88	60	53	49	-54.63
% Change		-18.52	-31.82	-11.67	-7.55	
"Did Not Catch Lobster"	15	13	9	15	13	-13.33
% Change		-13.33	-30.77	66.67	-13.33	
Not Reporting	65	70	63	31	20	-69.23
% Change		7.69	-10.00	-50.79	-35.48	
Percent Not Reporting	35	41	48	31	24	

LANDINGS AND VALUE

A total of 14,610,078 pounds of lobster were reported landed by commercial lobstermen in Massachusetts, a slight increase over 1988. Based on a value of \$2.82 per pound, the commercial catch was valued at \$41,200,420. Figure 2 shows the weighted ex-vessel average price for 1989 as derived from audited lobstermen's records, a reasonable drop from \$3.14, paid in 1988. (Weighted average price means that each price is weighted by the number of pounds that were paid at that price instead of taking a flat average of all prices). It is interesting to note the high price paid in March and the beginning of April when it was rumored that Japanese interests took hold of the market. Regional differences in price are typical, where lower prices are usually paid in Boston because of greater supply.

The coastal license holders reported landing 12,501,002 pounds, or 85.6 percent of the commercial catch. Of the 14,610,078 pounds of lobster landed commercially, 13,009,854 were reported taken inside of 69 degrees West and 41 degrees North (inshore), and of that number, 10,352,535 pounds (80% of inshore catch, or 71% of total catch) was estimated to have been taken within the territorial waters of the Commonwealth. Again, all categories of landings are up over 1988 levels, an interesting statistic despite the gauge increase and the drop in number of fishermen catching lobster. In fact the average pounds landed per fishermen (coastal and offshore licenses only) increased 8 percent in 1989. In total pounds of lobster landed, Essex County ranked first, Plymouth County second and Suffolk County third. See Table 3 for a breakdown of pounds landed and number of fishermen by license type and county and Table 4 for a five-year comparison of selected landings and effort statistics.

Boston ranked as the number one port in total pounds landed followed by Gloucester, Plymouth and Beverly, respectively. In total numbers of active commercial fishermen, Essex County ranked first with 661, Plymouth County second with 376 and Bristol County third with 215. Gloucester ranked first in active fishermen followed by Boston, New Bedford and Plymouth, respectively. See Tables 3 and 5, (the shaded areas in Table 5 refer to the top 10 cities in at least one of the two categories: pounds landed or number of fishermen).

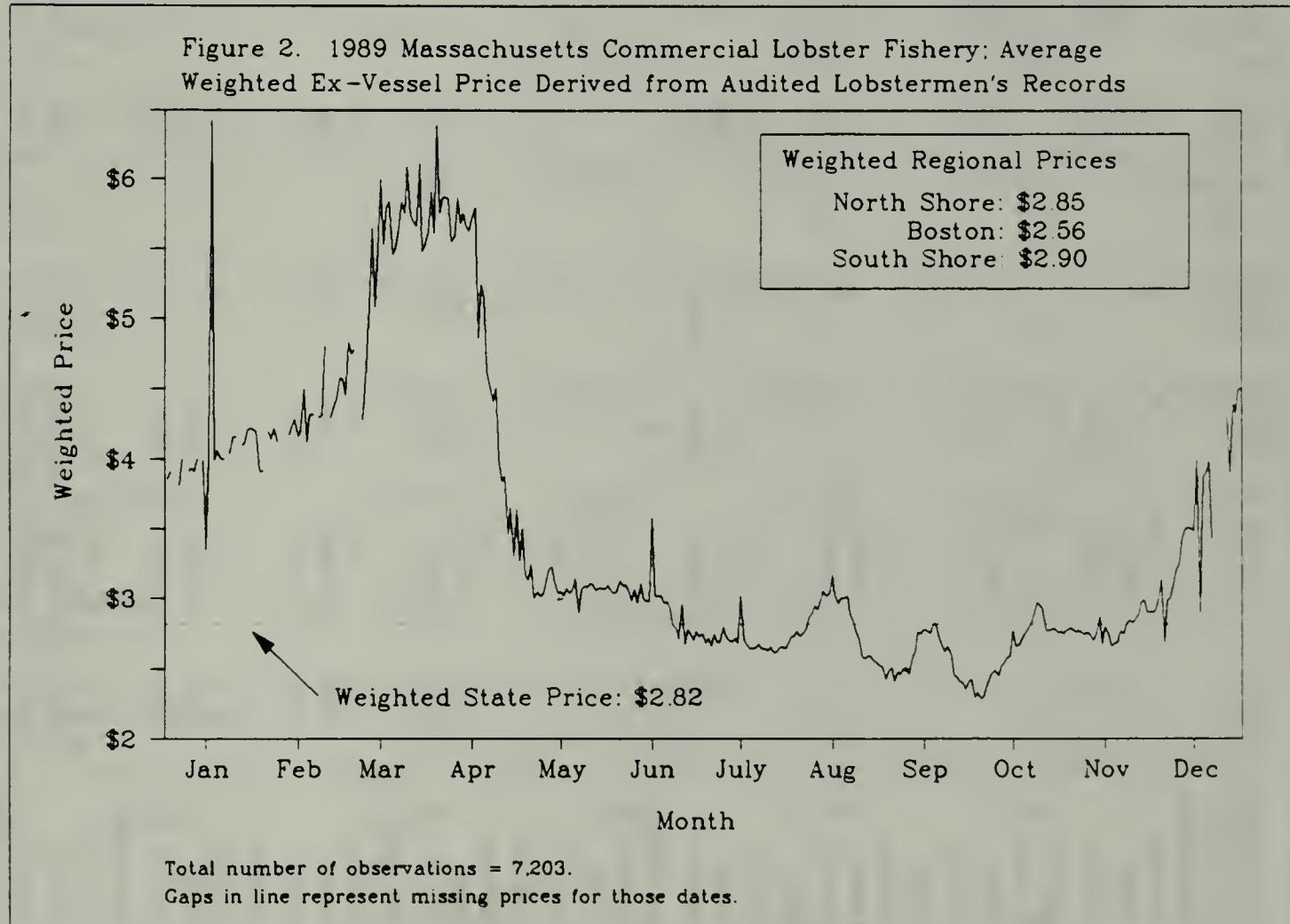


Table 3. 1989 Massachusetts Commercial Lobster Fishery; Number of Fishermen, Harvest (Lbs.) and Value of Harvest

AREA:	INSHORE (Inside 69°W 41°N (Areas 1-12))						OFFSHORE (Outside 69°W 41°N (Area 13))						
	COASTAL			SEASONAL			OFFSHORE			COASTAL			
LICENSE TYPE:	Diver	Potman	Potman/ Diver	Trawl or Gillnet	Potman	Potman	Trawl/ Gillnet	Trawl/ Gillnet	Potman	Potman	Trawl	Trawl	Offshore
GEAR TYPE:													GRAND TOTAL
-- COUNTY --													
<i>BARNSTABLE</i>													
Fishermen	4	124	6										183
Pounds	4,011	853,382	34,493										1,827,943
Value (\$)	11,311	2,406,536	97,270	0		1,700	581,901	85,578	3,184,297	219,219	1,730,583	20,701	5,154,800
<i>BRISTOL</i>													
Fishermen	89												215
Pounds	689,177	3,146				551	171,673	73,550	938,097	71,945	331,661	153,899	1,495,602
Value (\$)	0	1,943,478	8,872	0		1,554	484,117	207,411	2,645,432	202,884	935,285	433,995	4,217,596
<i>DUKES</i>													
Fishermen	25												34
Pounds	121,505					117	36,671	215	158,508	27,218		1,838	29,055
Value (\$)	0	342,644	0	0		330	103,413	606	446,994	76,754	0	5,182	81,935
<i>ESSEX</i>													
Fishermen	538	9	6			17	8	72	650		7	7	661
Pounds	4,882,904	119,244	10,113			3,215	3,021	94,112	5,113,502	16,701	122,696	17,419	5,270,318
Value (\$)	2,518	13,769,789	336,268	28,519		9,066	8,519	265,395	14,420,075	47,097	346,003	49,121	442,221
<i>NANTUCKET</i>													
Fishermen	5												0
Pounds	45,698												6
Value (\$)	0	128,868	0	0		0	0	0	0	209	45,907	3,123	4,873
<i>NORFOLK</i>													
Fishermen	61												0
Pounds	7,152	800,592	6,341	2938		712			817,735				817,735
Value (\$)	20,169	2,257,669	17,882	8,285		2,008	0	0	2,306,013	0	0	0	2,306,013
<i>PLYMOUTH</i>													
Fishermen	4	306	16			19	8	18	371				376
Pounds	6,686	2,621,154	77,486	815		4,198	22,658	37,992	2,770,989				2,860,065
Value (\$)	18,855	7,391,655	218,511	2,298		11,838	63,896	107,137	7,814,190	0	248,515	2,679	251,194
<i>SUFFOLK</i>													
Fishermen	120					3	6	22	151				164
Pounds	22,701	1,929,809	31,012			507	2,776	49,128	2,035,933	34,400	1,050	28,690	64,140
Value (\$)	64,017	5,442,062	87,454	0		1,430	7,828	138,540	5,741,330	97,008	2,961	80,904	180,873
<i>STATE TOTAL *</i>						49	46	162	1,581				1,705
Fishermen	13	1,268	35	8		9,903	443,147	285,552	13,009,854	229,750	1,157,215	213,259	1,600,224
Pounds	41,443	11,944,221	271,722	13,866						67,896	3,263,347	601,389	4,512,632
Value (\$)	116,869	33,682,702	766,256	39,102		27,926	1,249,675	805,257	36,687,789				41,200,421
<i>OUT OF STATE</i>													
Fishermen													16
Pounds		8,935											148,172
Value (\$)	0	25,197	0	0		0	0	0	0	114,977	4,817	119,794	337,820
										324,236	0	13,583	417,844

* Value is based on an average ex vessel price of \$2.82.

* Row and column totals may not equal the sum of the rows or columns due to masking of the data.

**Table 4. Massachusetts Commercial Lobster Fishery;
Selected Landings (Lbs.) and Effort Statistics, 1985 - 89**

Percent
Five Year
Change

	1985	1986	1987	1988	1989	
Total Landings	14,203,083	14,690,452	13,384,566	14,262,798	14,610,078	2.87
<i>Percent Change</i>		3.43	-8.89	6.56	2.43	
Total Traps Fished	404,662	427,819	459,360	460,031	453,447	12.06
<i>Percent Change</i>		5.72	7.37	0.15	-1.43	
Total Value	\$35,081,615	\$36,873,035	\$40,515,081	\$44,785,186	\$41,200,420	17.44
<i>Percent Change</i>		5.11	9.88	10.54	-8.00	
Territorial Landings	10,303,792	10,634,231	9,371,224	9,700,058	10,391,098	0.85
<i>Percent Change</i>		3.21	-11.88	3.51	7.12	
INSHORE						
Landings	12,399,745	12,918,388	11,510,379	12,345,100	13,009,854	4.92
<i>Percent Change</i>		4.18	-10.90	7.25	5.38	
Inshore Value	\$30,627,370	\$32,425,154	\$34,841,917	\$38,763,614	\$36,687,788	19.79
<i>Percent Change</i>		5.87	7.45	11.26	-5.36	
Trap Landings	12,199,353	12,580,793	11,243,043	12,052,241	12,668,993	3.85
<i>Percent Change</i>		3.13	-10.63	7.20	5.12	
Inshore Traps Fished	375,172	399,808	427,018	433,360	430,479	14.74
<i>Percent Change</i>		6.57	6.81	1.49	-0.66	
Non-Trap Landings	200,392	337,595	267,336	292,859	340,861	70.10
<i>Percent Change</i>		68.47	-20.81	9.55	16.39	
OFFSHORE						
Landings	1,803,338	1,772,064	1,874,187	1,917,698	1,600,224	-11.26
<i>Percent Change</i>		-1.73	5.76	2.32	-16.55	
Offshore Value	\$4,454,245	\$4,447,881	\$5,673,164	\$6,021,572	\$4,512,632	1.31
<i>Percent Change</i>		-0.14	27.55	6.14	-25.06	
Trap Landings	1,747,258	1,578,679	1,686,856	1,695,263	1,386,965	-20.62
<i>Percent Change</i>		-9.65	6.85	0.50	-18.19	
Offshore Traps Fished	29,490	28,011	32,342	26,671	22,968	-22.12
<i>Percent Change</i>		-5.02	15.46	-17.53	-13.88	
Non-Trap Landings	56,080	193,385	187,331	222,435	213,259	280.28
<i>Percent Change</i>		244.84	-3.13	18.74	-4.13	
Average Value (\$) / Pound	2.47	2.51	3.03	3.14	2.82	
<i>Percent Change</i>		1.62	20.60	3.73	-10.19	
Ave. Lbs. / Trap-Haul	0.6490	0.6907	0.6304	0.6478	0.6601	
<i>Percent Change</i>		6.43	-8.73	2.76	1.90	
Ave. Lbs. / Trap	34.46	33.10	28.15	29.88	31.00	
<i>Percent Change</i>		-3.97	-14.95	6.17	3.73	

Table 5. 1989 Massachusetts Commercial Lobster Fishery; Number of Fishermen
(Except Seasonal) and Landings by Homeport, Inshore and Offshore

TOWN	FISHERMEN		POUNDS INSHORE	POUNDS OFFSHORE	POUNDS	TOTAL	
	NUMBER	RANK				PERCENT	RANK
BARNSTABLE-YARMOUTH	7	32	105,171	299,077	404,248	2.77	15
BEVERLY	48	9	743,152	9,571	752,723	5.16	4
BOSTON	124	2	1,657,819	64,140	1,721,959	11.79	1
BOURNE	6	33	12,394		12,394	0.08	47
CHATHAM	25	19	136,411	16,674	153,085	1.05	24
CHILMARK	18	22	141,530	23,517	165,048	1.13	23
COHASSET	44	11	652,078		652,078	4.47	7
DANVERS	16	23	101,880		101,880	0.70	29
DARTMOUTH	18	22	39,520		39,520	0.27	40
DENNIS	21	21	77,335		77,335	0.53	31
DUXBURY	7	32	50,820		50,820	0.35	35
ESSEX	8	31	20,071		20,071	0.14	43
FAIRHAVEN	32	15	105,206	281,150	386,356	2.65	16
FALMOUTH	10	29	13,297	353	13,649	0.09	46
GLOUCESTER	215	1	1,217,060	146,084	1,363,144	9.34	2
GOSNOLD	3	35	5,337		5,337	0.04	48
HARWICH	4	34	84,971	63,504	148,475	1.02	26
HINGHAM	31	16	477,338		477,338	3.27	13
HULL	37	13	289,127		289,127	1.98	20
IPSWICH	22	20	48,152		48,152	0.33	37
KINGSTON	10	29	25,874		25,874	0.18	42
LYNN	14	25	341,356		341,356	2.34	18
MANCHESTER	36	14	261,340		261,340	1.79	21
MARBLEHEAD	56	8	500,261		500,261	3.43	11
MARSHFIELD	84	5	680,340		680,340	4.66	6
MATTAPoisETT	13	26	60,347		60,347	0.41	33
NAHANT	37	13	521,948		521,948	3.57	9
NANTUCKET	6	33	45,907	4,873	50,780	0.35	36
NEW BEDFORD	121	3	312,572	174,585	487,157	3.34	12
NEWBURYPORT-NEWBURY	26	18	40,162		40,162	0.28	39
ORLEANS-EASTHAM	28	17	109,473		109,473	0.75	28
PLYMOUTH	103	4	722,840	89,076	811,916	5.56	3
PROVINCETOWN	36	14	134,322	4,547	138,869	0.95	27
QUINCY	13	26	73,996		73,996	0.51	32
REVERE-CHELSEA	12	27	229,016		229,016	1.57	22
ROCKPORT	58	7	336,429		336,429	2.30	19
ROWLEY	3	35	1,815		1,815	0.01	49
SALEM	15	24	56,275		56,275	0.39	34
SALISBURY	11	28	15,245	1,161	16,406	0.11	45
SANDWICH	32	15	428,546	314,605	743,151	5.09	5
SAUGUS	47	10	519,878		519,878	3.56	10
SCITUATE	62	6	417,612		417,612	2.86	14
SWAMPSCOTT	32	15	385,264		385,264	2.64	17
TISBURY-OAK BLUFFS-EDGARTOWN	12	27	11,524	5,538	17,062	0.12	44
TRURO-WELLFLEET	9	30	26,662		26,662	0.18	41
WAREHAM-MARION	10	29	42,492		42,492	0.29	38
WESTPORT-FALL RIVER-SWANSEA	42	12	480,247	101,770	582,018	3.99	8
WEYMOUTH	7	32	90,949		90,949	0.62	30
WINTHROP	25	19	148,590		148,590	1.02	25
STATEWIDE TOTAL	1,656		12,999,951	1,600,224	14,600,175	100.00	
OUT OF STATE	16		28,377	119,794	148,172		

Shaded areas refer to towns which rank in top 10 for one or both of the categories.

Inshore landings by commercial fishermen were concentrated during the months July through November when 80 percent of the yearly harvest was landed. Landings in December (4.34 percent) were considerably less than in 1988, when 11.17 percent of the inshore catch was harvested. This is most likely explained by the extreme cold weather experienced during that month. See Table 6 and Figure 3.

The greatest harvest of lobster taken inshore was from the Boston Harbor vicinity (including outlying areas out to 20 fathoms, or Area 4 on Figure 1) where approximately 36% of the state's inshore harvest was caught. This far outweighs any of the other designated areas in terms of landings. See Figure 1 for the map of fishing areas, and Figures 4 and 5 and Table 7 for a complete breakdown by area for each license type and month.

Table 6 1989 Massachusetts Commercial Lobster Fishery: Percent Monthly Inshore Harvest for Each License Type

Month	Coastal	Offshore	Seasonal
January	1.48	4.44	
February	0.58	3.00	
March	0.58	3.19	
April	1.81	3.91	
May	3.69	4.35	
June	6.54	5.21	15.53
July	17.14	11.06	35.99
August	17.28	12.48	35.55
September	19.10	13.55	12.93
October	16.54	14.80	
November	11.29	13.48	
December	3.98	10.54	
Total	100.00	100.00	100.00

Figure 3. 1989 Massachusetts Commercial Lobster Fishery: Total Monthly Inshore Harvest by License Type

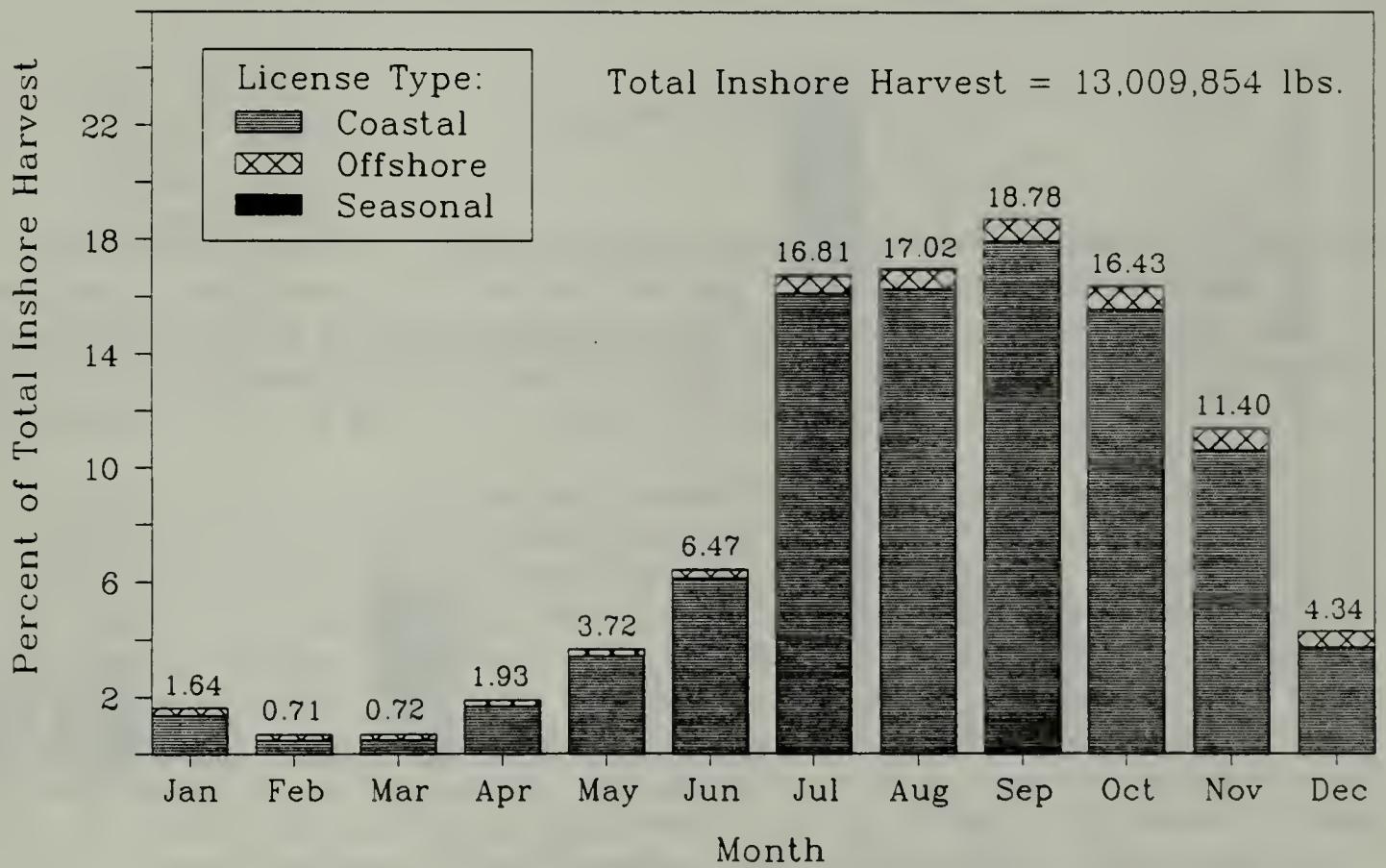


Table 7 1989 Massachusetts Commercial Lobster Fishery: Percent Inshore Harvest by Area Fished for Each License Type

Area Fished	Coastal	Offshore	Seasonal
1	0.97	0.56	0.00
2	8.77	0.14	24.92
3	11.05	0.07	2.96
4	35.86	0.48	18.73
5	9.08	1.30	10.56
6	5.07	0.21	17.44
7	1.80	0.32	2.91
8	8.99	21.31	3.98
9	0.78	49.82	0.00
10	3.56	0.19	18.08
11	3.76	16.82	0.43
12	4.56	8.78	0.00
Total	100.00	100.00	100.00

It is important to note that the monthly breakdown depicted in Figure 5 is based on the fishermen's annual estimate of where they fished, not a monthly estimate. In other words, if a fisherman reported catching 50% of his catch in area 3 and 50% in area 8 (as defined by Figure 1), that estimate was applied across all months that he fished. However, he may have harvested his catch from area 8 during only 2 months of the year, whereas his catch from area 3 may have come from 6 months of fishing in that area. The 1990 catch report will be changed to obtain a monthly breakdown of harvest and effort by fishing area. In addition, the designated areas will be changed to reflect territorial and non-territorial landings instead of the present inshore/offshore format.

Figure 4. 1989 Massachusetts Commercial Lobster Fishery: Total Inshore Harvest by Area Fished and License Type

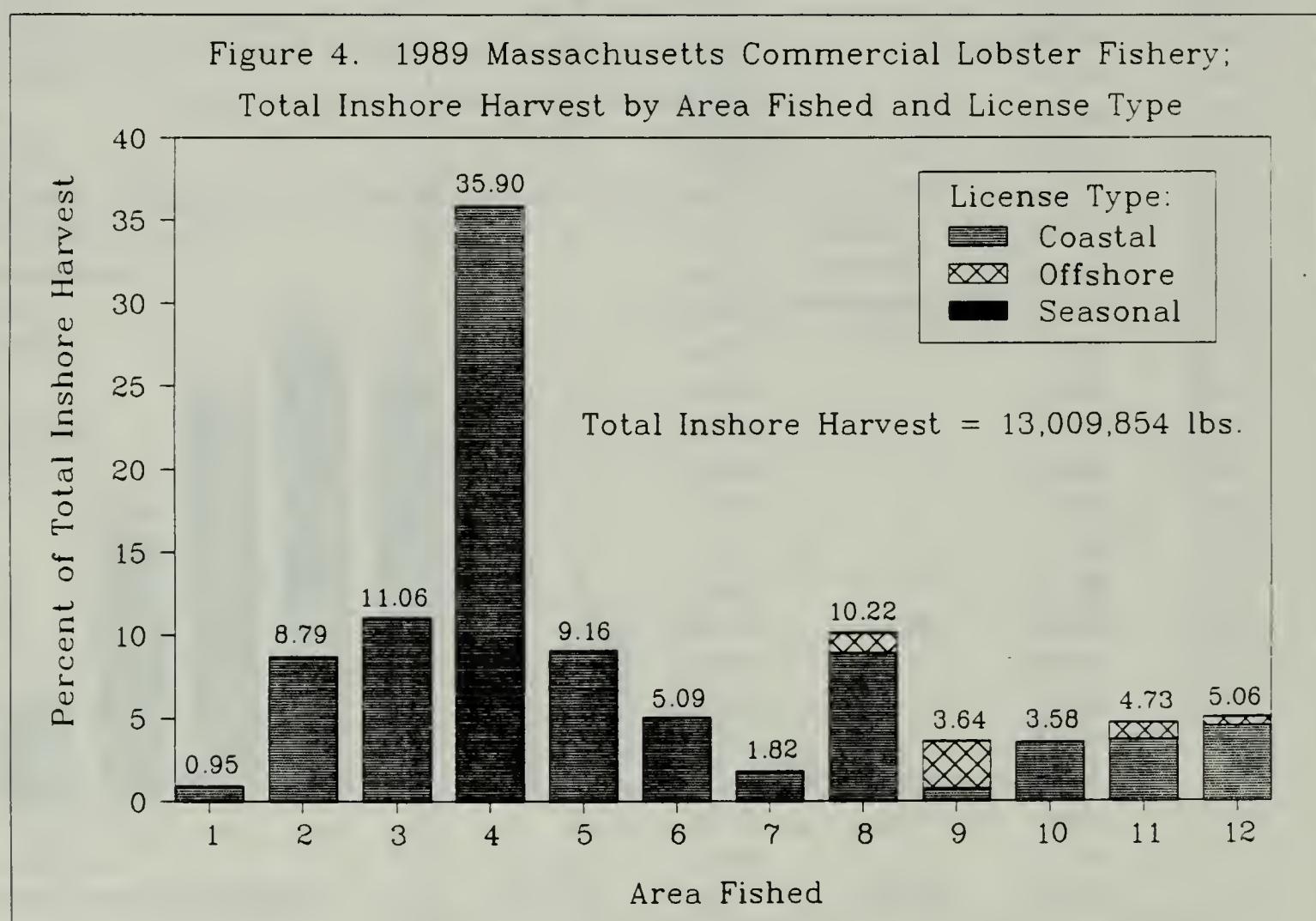
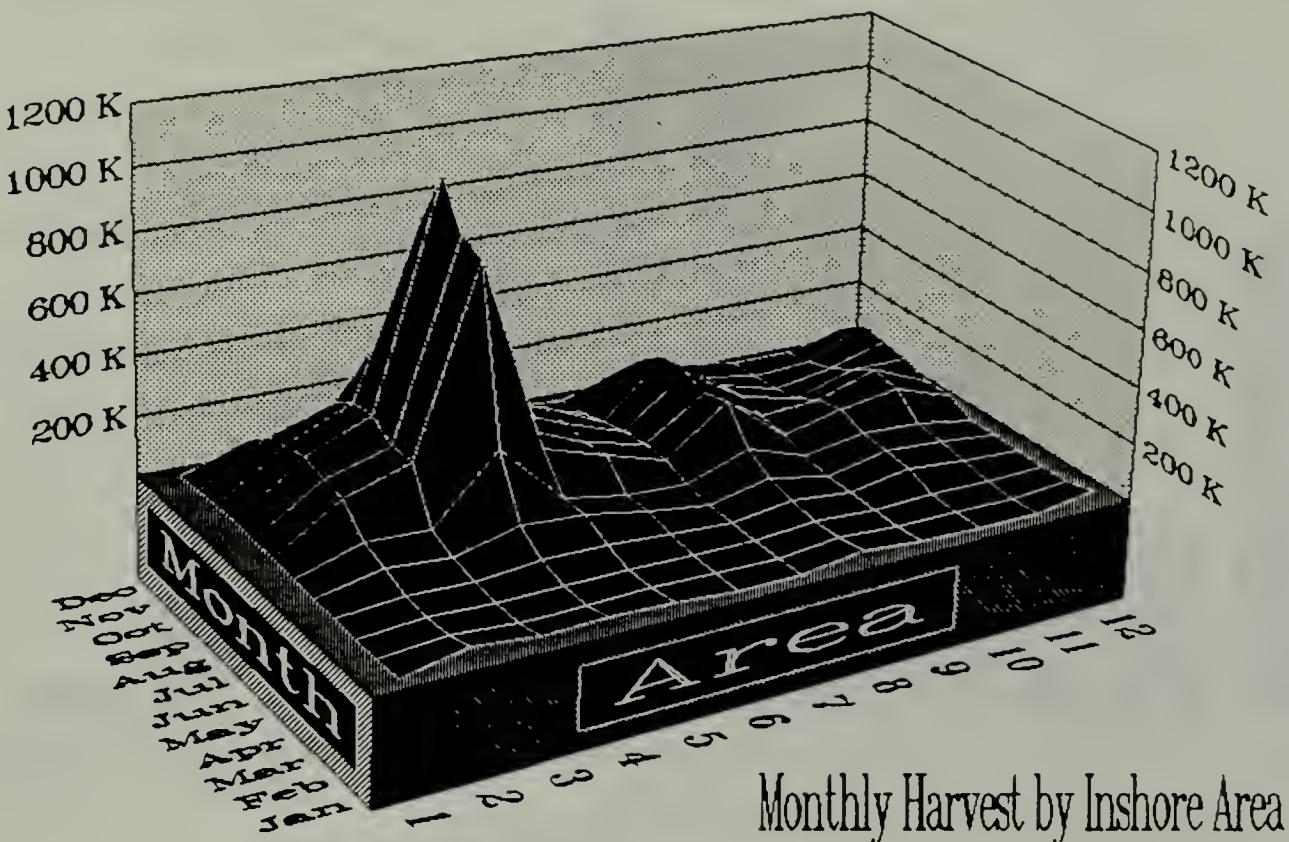


Figure 5. Massachusetts Commercial Lobster Fishery

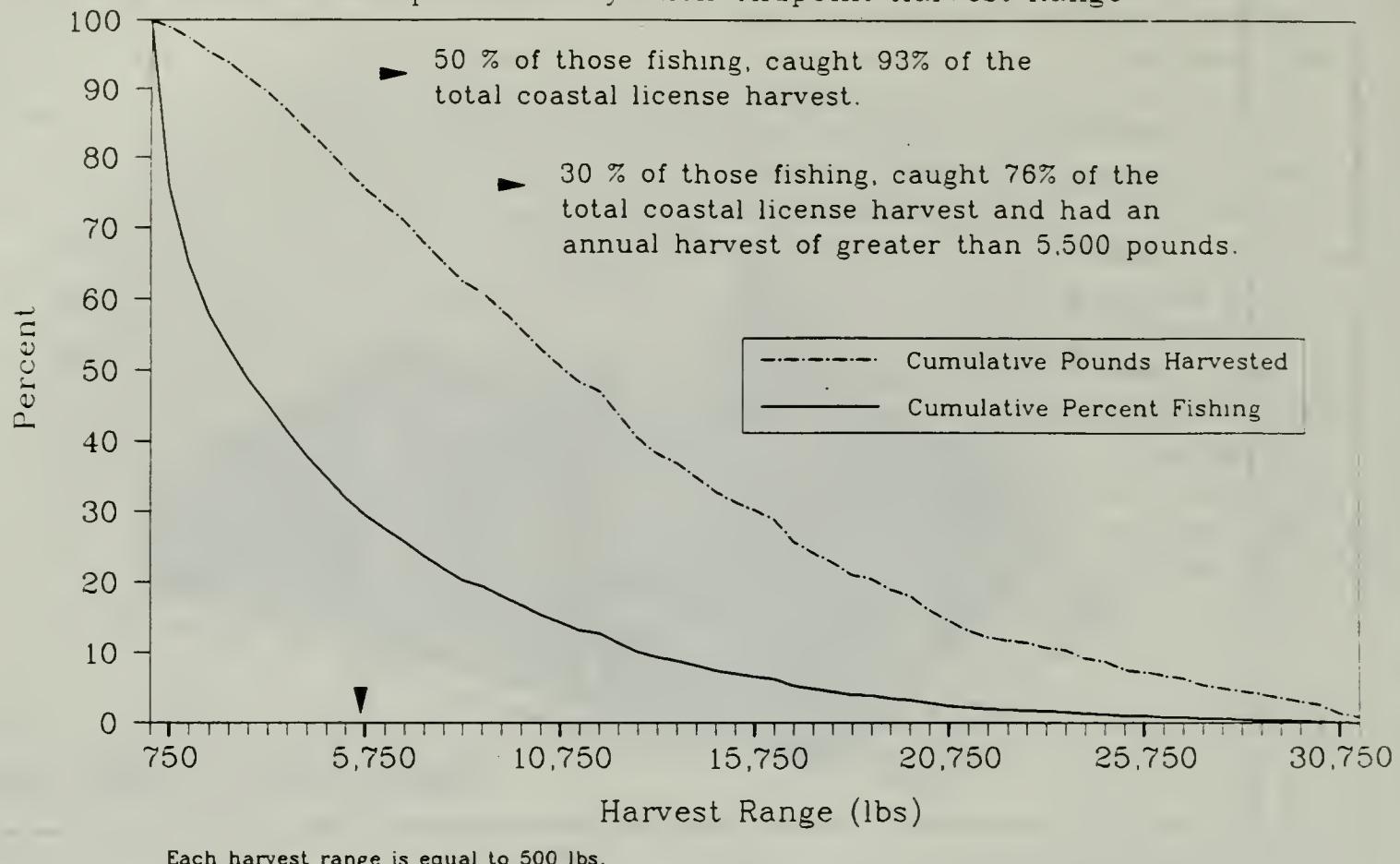


FISHING EFFORT

More and more data requests have been made with regard to fishing effort over the last several years, and it was felt this section might answer some of those questions. Most of the following figures address the coastal license holders only, since their landings constitute approximately 86 percent of the total state's harvest and their efforts are generally targeted at catching lobster.

Figure 6 shows the distribution of coastal licensed fishermen and their associated cumulative percent harvest in terms of their annual harvest range. The X-axis depicts harvest range in 500 pound increments (ie. 5,750 is the midpoint for the range 5,500 - 6,000 pounds). The two lines indicate percent cumulative pounds harvested and percent cumulative fishermen catching lobster. Last year, 30 percent of the coastal licenses that fished, reported an annual harvest of greater than 5,500 pounds each and caught 76 percent of the total coastal license harvest or approximately 9.5 million pounds. This graph is meant to show the large disparity in effort among the coastal license holders, where, in particular, 50 percent of those fishing reported catching 93 percent of the coastal license catch. Conversely, the other 50 percent fishing only caught 7 percent of the coastal license catch.

Figure 6. 1989 Massachusetts Commercial Lobster Fishery.
Percent Coastal Licenses Fishing and Their Associated Percent
Harvest Represented by Their Midpoint Harvest Range



Coastal licensed fishermen fished for an average 6.88 months per year in 1989 as shown in Figure 7. Notice the large amount of license holders who fished for less than 6 months of the year, ones who might be termed "part-timers." Fishing effort, as shown in Figure 8, was typically concentrated during the months June through November generally when molting or growth of the lobster occurs.

The number of traps fished during each month and area is depicted in Figure 9. As expected, area 4 represents a huge amount of effort compared to other inshore areas, where over 120,000 traps were fished (135,715 in September) between the months August and October. Again, the breakdown by area is based on the fishermen's annual estimate of their catch, and applied across all months, as in Figure 5. The total number of traps reported fished by all license categories in 1989 dropped slightly to 453,447, a figure which makes sense since there was a 6 percent drop in the number of potmen catching lobster in 1989. The average catch per trap haul for coastal lobstermen was .6601 pounds a slight increase over 1988. For traps fished one set-over day the average was .3460; for those fished two days .5560; for three days .6141; and for four days .6706. See Figure 10 for catch effort by set-over day. Figures 11 and 12 reflect the average catch per trap haul - set-over day for area fished and month, where set-over day is factored into the effort.

Figure 7. 1989 Massachusetts Commercial Lobster Fishery. Frequency of the Number of Months Fished per Year by Coastal License Holders

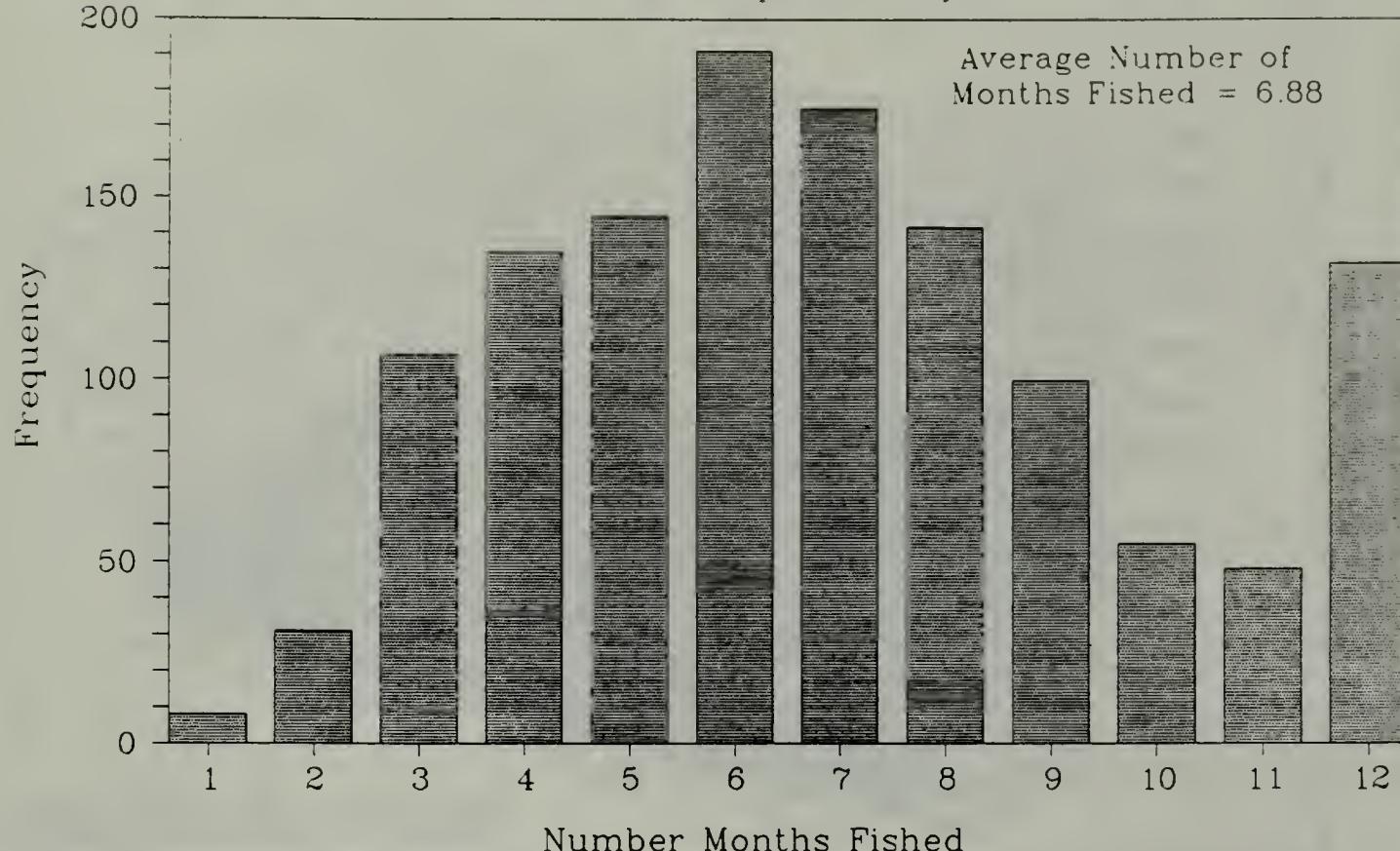


Figure 8. 1989 Massachusetts Commercial Lobster Fishery; Frequency of Coastal License Holders Fishing per Month

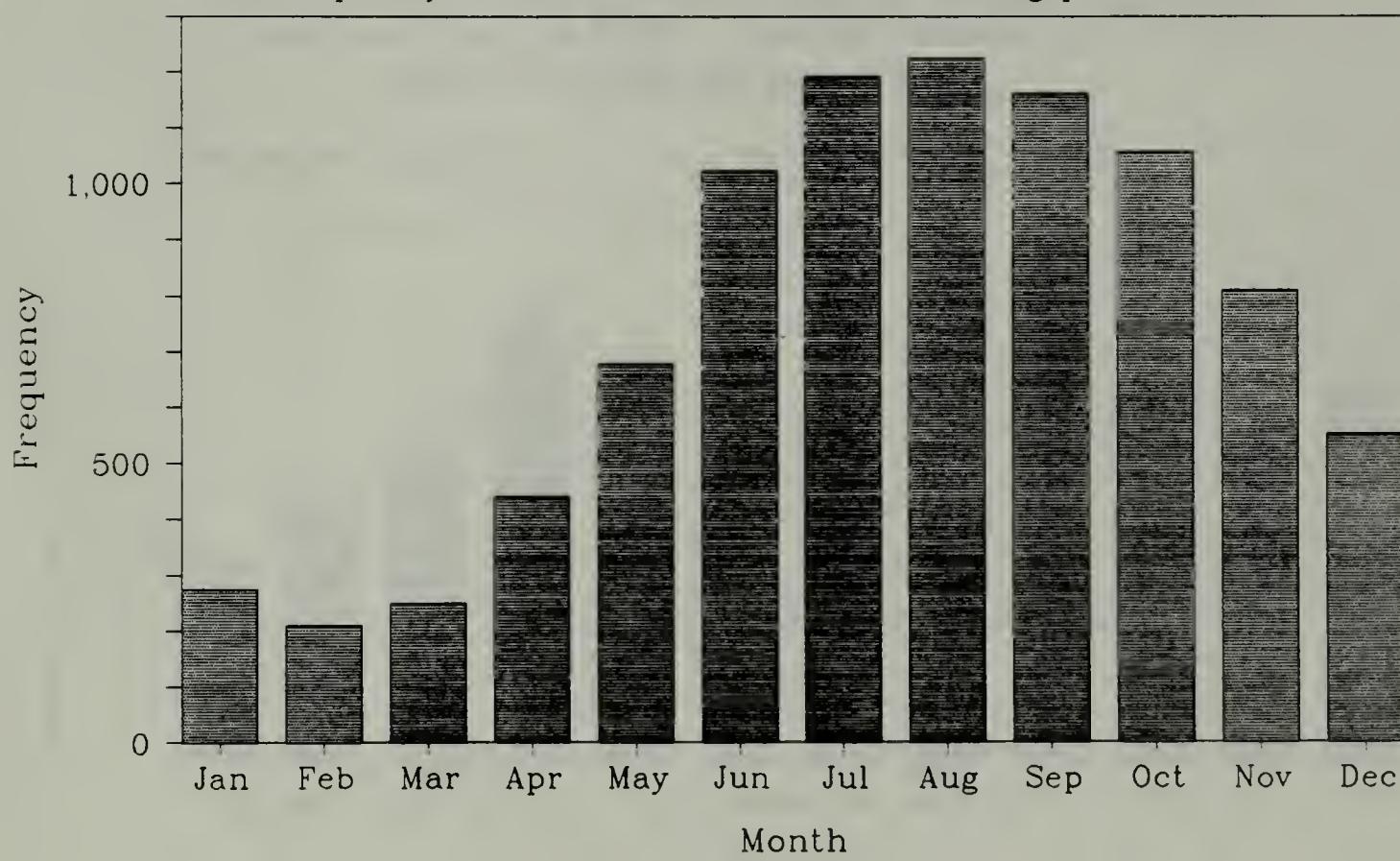


Figure 9. Massachusetts Commercial Lobster Fishery

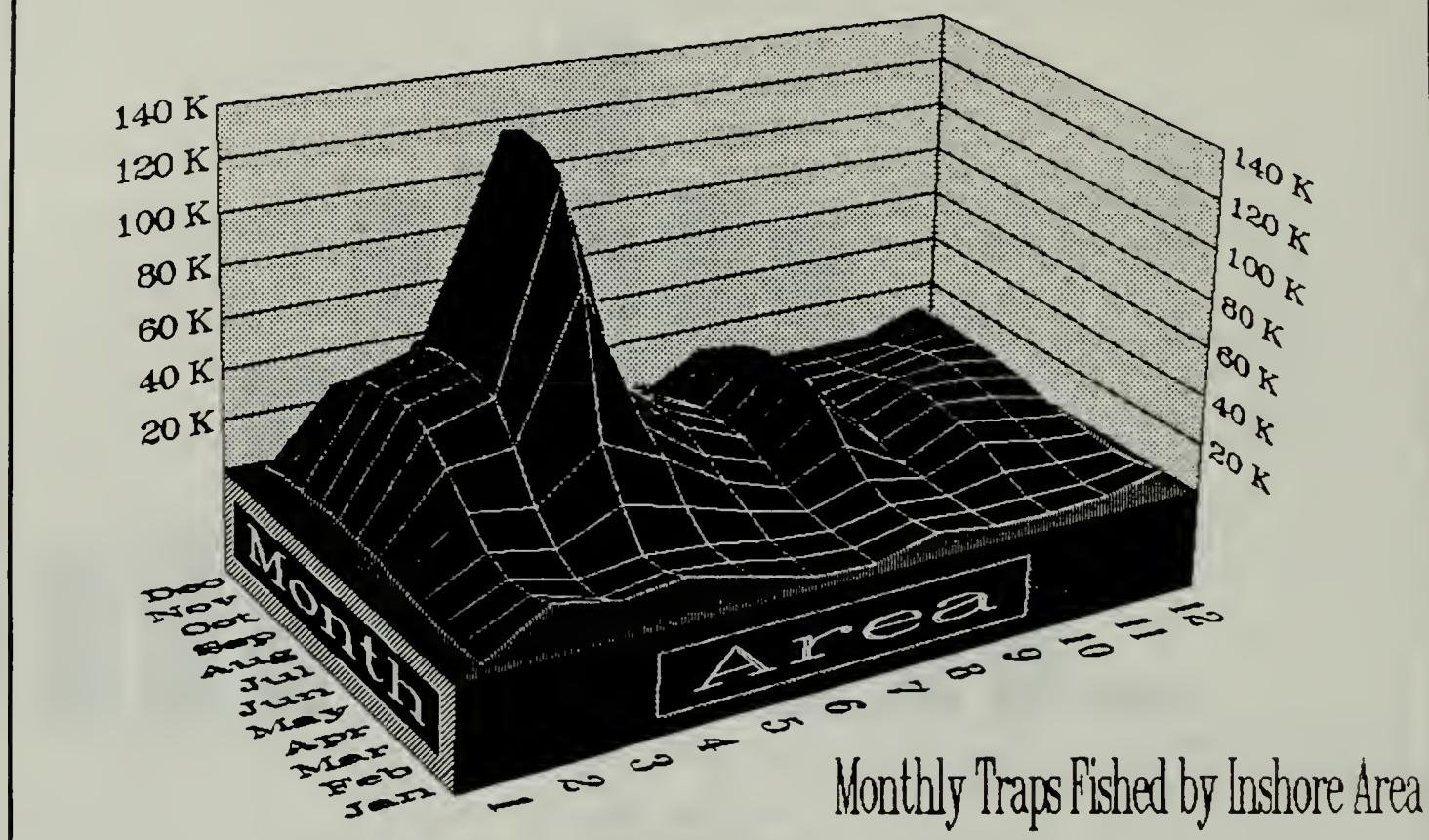


Figure 10. 1989 Massachusetts Commercial Lobster Fishery; CPUE by Set-Over Day for Coastal and All Potmen

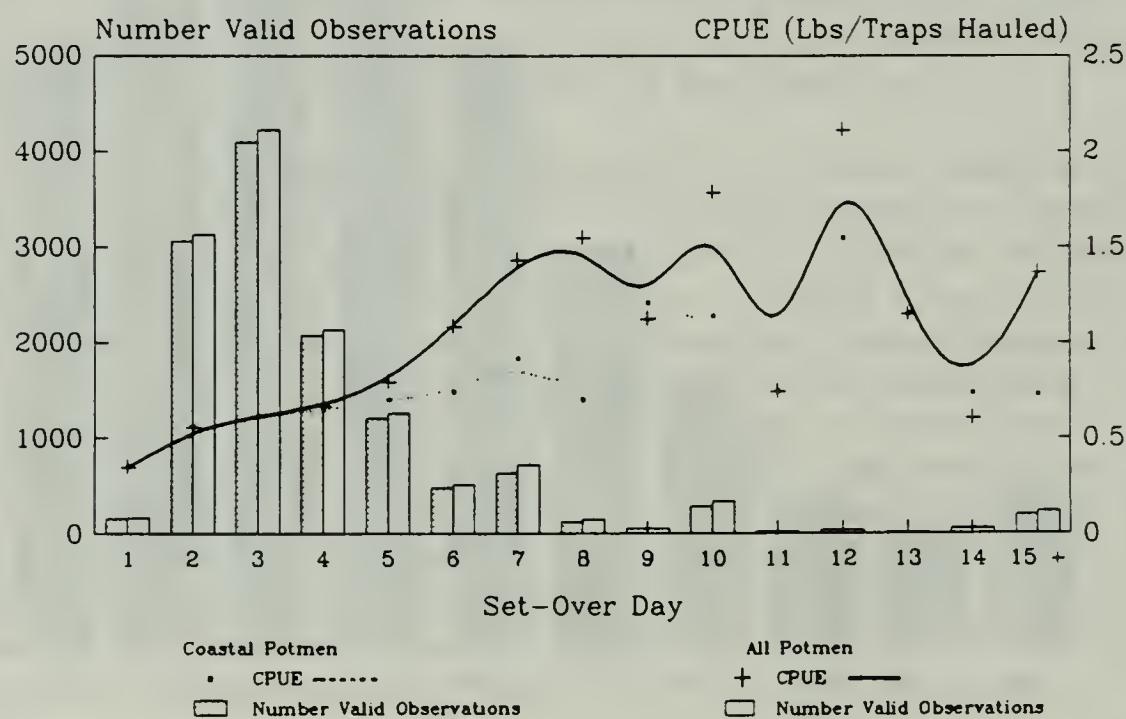


Figure 11. 1989 Massachusetts Commercial Lobster Fishery,
Catch Per Unit of Effort for Both Coastal and All Potmen by Month

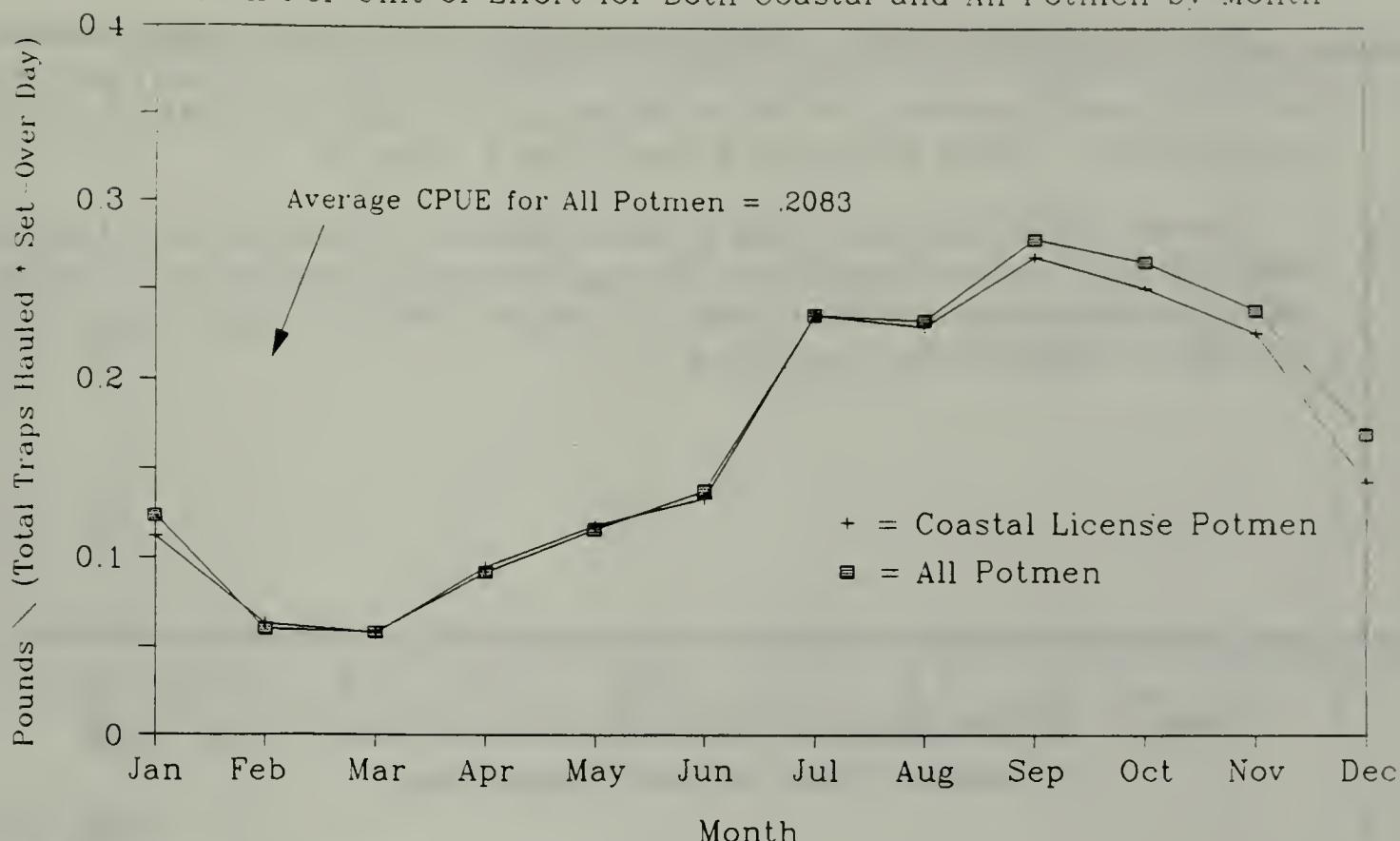
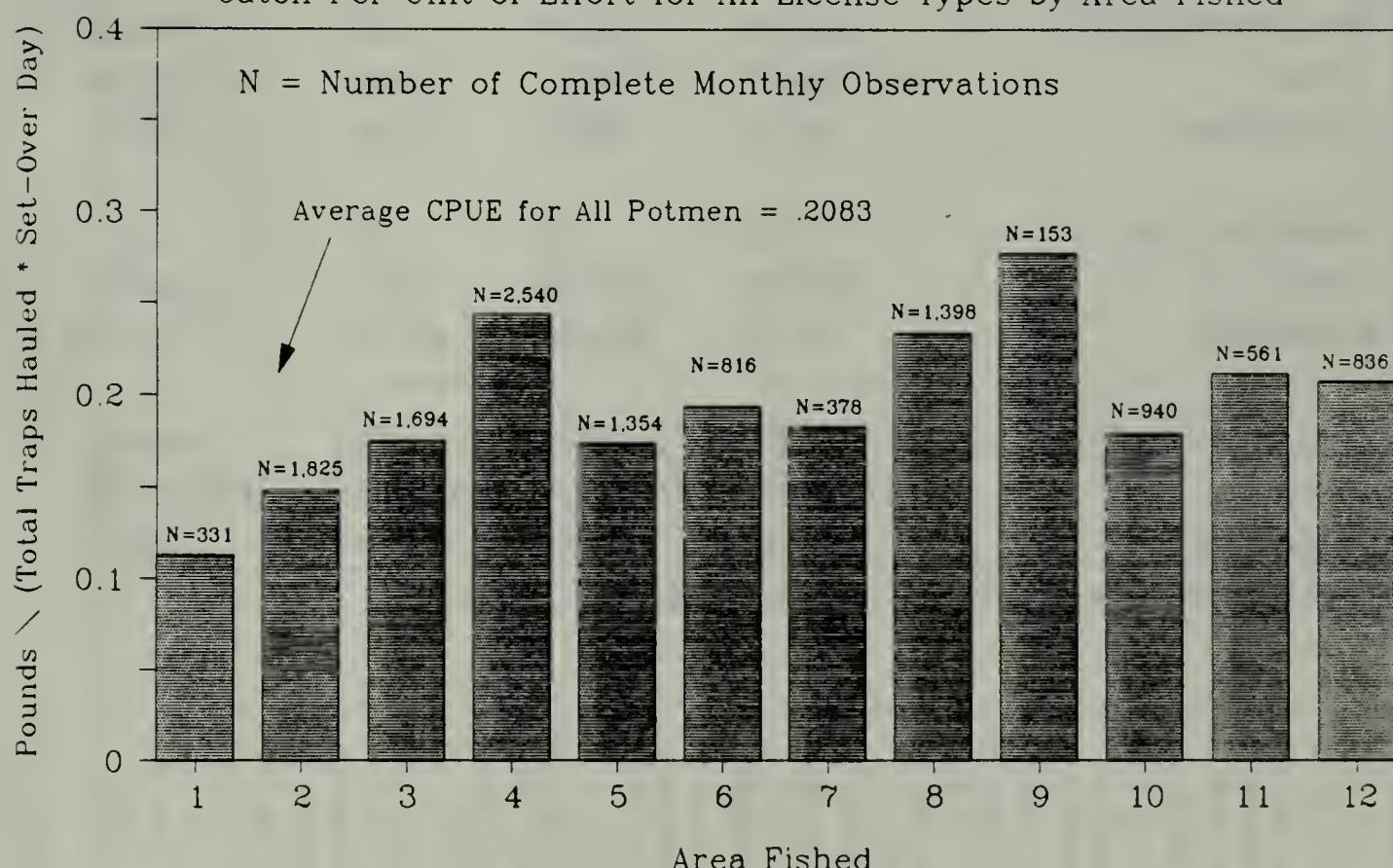


Figure 12. 1989 Massachusetts Commercial Lobster Fishery,
Catch Per Unit of Effort for All License Types by Area Fished



FISHING GEAR, VESSELS AND VALUE

In the commercial fishery, pots were valued at \$20,173,786, diving gear at \$44,955, and power and non-power boats at \$50,762,897, yielding a total gear value of \$70,981,638. Combined with the ex-vessel value of lobster sold, \$41,200,420, gives a total fishery value of \$112,182,058. See Tables 8, 9 and 10.

Overall, 64% of the traps fished in the commercial fishery were wire framed, with 35% being wooden framed and less than 1% categorized as "other". Average value (including warp and buoy) ranged anywhere from \$21.67 to \$100.00, with an overall average of \$44.34. See Table 8.

Table 8. 1989 Massachusetts Commercial Lobster Fishery; Trap Types Fished and Value for Each License Type

	Coastal	Offshore	Seasonal	Trap Type	Total Percent of Total
Wooden Framed Traps	145,857	14,908	148	160,913	35.36%
Value	\$6,359,582	\$1,070,924	\$4,069	\$7,434,575	
Value/Trap	\$43.60	\$71.84	\$27.53	\$46.20	
Wire Framed Traps	275,078	16,507	824	292,409	64.26%
Value	\$11,592,427	\$1,033,531	\$26,261	\$12,652,219	
Value/Trap	\$42.14	\$62.61	\$31.88	\$43.27	
Other Trap Types	1,025	643	22	1,690	0.37%
Value	\$22,207	\$64,260	\$525	\$86,992	
Value/Trap	\$21.67	\$100.00	\$23.51	\$51.49	
Total for License Type	421,960	32,058	994	455,012	
Value	\$17,974,216	\$2,168,715	\$30,855	\$20,173,786	
Value/Trap	\$42.60	\$67.65	\$31.04	\$44.34	

Value of trap includes warp and buoy. These figures include out-of-state fishermen.

Table 9. 1989 Massachusetts Commercial Lobster Fishery; Number of Fishing Vessels and Pots Fished

AREA:	INSHORE (Inside 69°W 41°N (Area 1-12))						OFFSHORE (Outside 69°W 41°N (Area 13))								
	COASTAL			SEASONAL (Student) POTMAN			OFFSHORE Trawl or Gillnet			COASTAL			OFFSHORE		
LICENSE TYPE:	Diver	Potman	Potman/ Diver	Potman	Potman	Potman	Potman	Potman	Potman	Potman	Potman	TOTAL INSHORE	TOTAL INSHORE	TOTAL OFFSHORE	GRAND TOTAL
GEAR TYPE:															
-- COUNTY --															
<i>BARNSTABLE</i>															
Pots Fished	31,283	1,715	119	2,240	5	24	35,357	1,530	5,700	4	8	7,230	42,587	185	
Power Boat	4	127	6		5			2				14		3	
Non Power Boat	1	2						171				0			
<i>BRISTOL</i>															
Pots Fished	22,423	265	47	5,315	2	12	28,050	1,527	5,144	4	79	6,671	34,721	211	
Power Boat	87							126				85		0	
Non Power Boat								0				0			
<i>DUKES</i>															
Pots Fished	4,097	28	10	1,191	5	1	5,298	504		1		504	5,802	37	
Power Boat												0		0	
Non Power Boat								35				0			
<i>ESSEX</i>															
Pots Fished	171,960	2,972	316	253	8	73	175,501	1,038	1,700	1	7	2,738	178,238	662	
Power Boat	2	541	9	6	14			653				9		14	
Non Power Boat		13			1			14				0			
<i>NANTUCKET</i>															
Pots Fished	1,170							1,170			1	0	1,170	6	
Power Boat												0		0	
Non Power Boat								5				0			
<i>NORFOLK</i>															
Pots Fished	21,952	210	50												
Power Boat	2	62	1	1											
Non Power Boat		1						1							
<i>PLYMOUTH</i>															
Pots Fished	95,675	3,708	394	1,740	7	18	101,517	2,700		2		2,700	104,217	385	
Power Boat	3	315	18	1	19			381				4		4	
Non Power Boat		3			1			4				0		1	
<i>SUFFOLK</i>															
Pots Fished	58,242	950	58	2,125	3	6	61,375	375	2,750	1	2	6	3,125	64,500	
Power Boat	2	122	2					157				9		166	
Non Power Boat								1				0		1	
<i>STATE TOTAL</i>															
Pots Fished	406,801	9,820	994	12,864	45	43	430,479	4,974	17,994	7	13	104	22,968	453,447	
Power Boat	13	1,287	36	8	45	163	1,595					124	1,719	1,719	
Non Power Boat	1	19	0	0	2	1	0	23	0	0	0	0	0	23	
<i>OUT OF STATE</i>															
Pots Fished	365		5									1,200	1,565	1,565	
Power Boat		2										9	16	16	
Non Power Boat												0	0	0	

Table 10. 1989 Massachusetts Commercial Lobster Fishery; Value of Diving Gear and Fishing Vessels

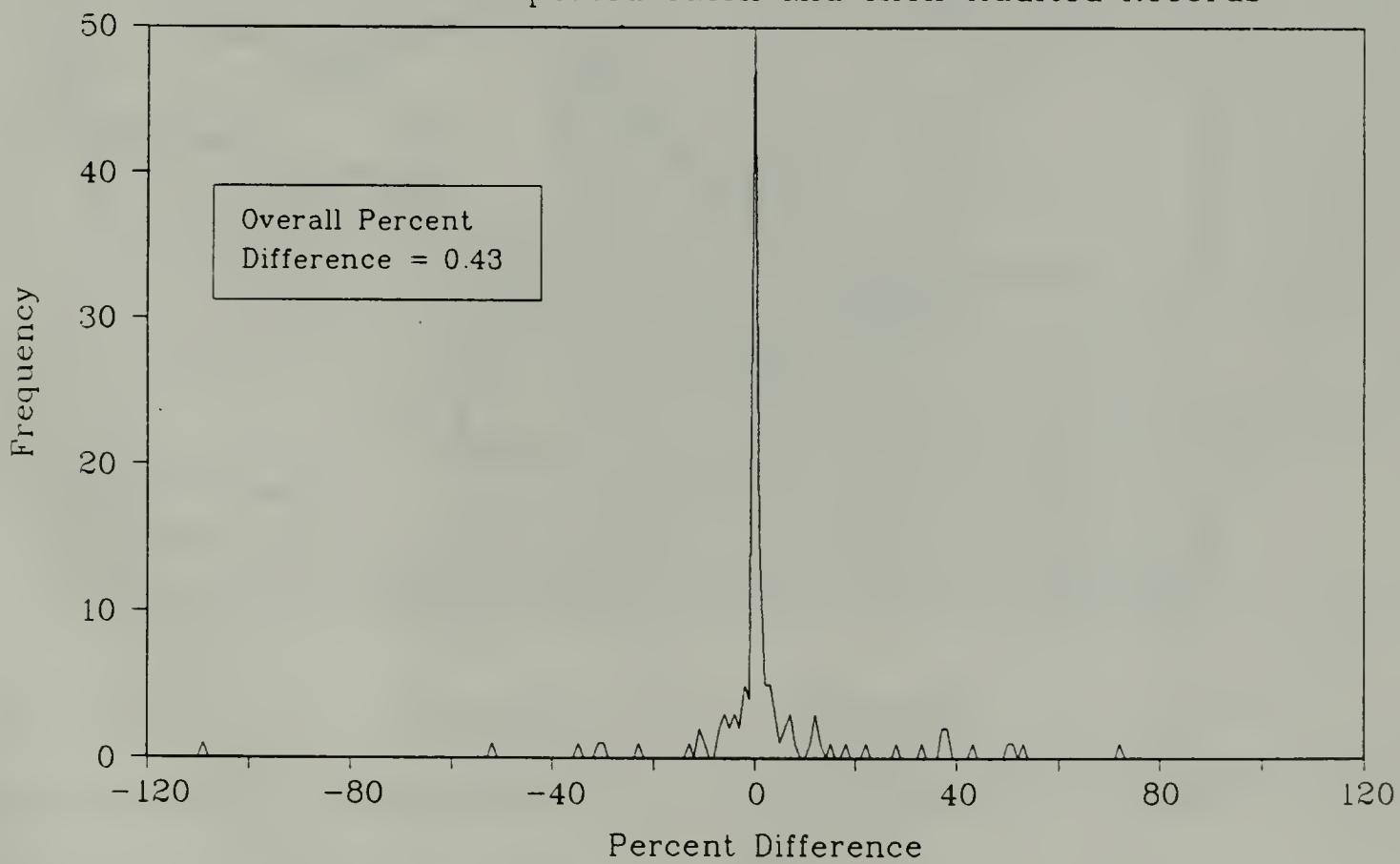
AREA:	INSHORE (Inside 69°W 41°N (Areas 1-12))						OFFSHORE (Outside 69°W 41°N (Area 13))							
	LICENSE TYPE:		COASTAL		SEASONAL (Student Potman)		OFFSHORE		COASTAL		OFFSHORE		GRAND TOTAL	
GEAR TYPE:	Diver	Potman	Diver	Trawl or Gillnet	Potman	Trawl or Gillnet	Potman	Trawl or Gillnet	Potman	Trawl	Offshore	Potman	Trawl	Offshore
-- COUNTY --														
<i>BARNSTABLE</i>														
Diving Gear	5,500		3,780				23,350	567,700	179,786	4,003,268	402,250	1,095,000	86,621	0
Power Boat	14,980		2,982,353	235,100						9,075		1,583,871	0	9,280
Non Power Boat	6,000		3,075											5,587,140
<i>BRISTOL</i>														9,075
Diving Gear			525						525					525
Power Boat			2,418,221				3,750	762,680	380,757	3,565,408	360,000	1,315,000	1,517,003	3,192,003
Non Power Boat									0				0	0
<i>DUKES</i>														
Diving Gear														
Power Boat														
Non Power Boat														
<i>ESSEX</i>														
Diving Gear	3,000		4,491											
Power Boat	105,100		15,317,185	281,200		58,000		31,503	108,386	415,239	16,316,612	150,000	600,000	99,436
Non Power Boat			3,730			100				3,830				849,436
<i>NANTUCKET</i>														
Diving Gear														
Power Boat														
Non Power Boat														
<i>NORFOLK</i>														
Diving Gear	3,000		1,800											
Power Boat	37,000		2,025,172	20,000		750			5,000					
Non Power Boat			100											
<i>PLYMOUTH</i>														
Diving Gear	7,260		8,979											
Power Boat	30,000		8,682,269	320,450		9,000		60,675	286,625	376,736	9,765,754	910,000	12,000	922,000
Non Power Boat			2,400			38					2,438			
<i>SUFFOLK</i>														
Diving Gear	6,500		120											
Power Boat	63,500		5,035,171	60,036										
Non Power Boat														
<i>STATE TOTAL</i>														
Diving Gear	25,260		19,695											
Power Boat	250,580		37,053,311	916,786		67,750		134,678	2,376,266	1,783,138	44,955	1,182,250	5,115,000	1,867,695
Non Power Boat			9,305	0		0				138	0	0	15,443	0
<i>OUT OF STATE</i>														
Diving Gear														0
Power Boat														670,500
Non Power Boat														0

VALIDITY OF DATA

Each year 150 coastal license holders are selected and audited for the records they used to complete the catch portion of their catch report. The Division does this to assess the amount of error involved in the reporting process. Selection is done randomly except when fishermen fail an audit. In these cases, they are audited again the following year. The audit was first instituted in 1977 for the 1976 catch reports. Over the last five years the lobstermen selected for audit reported landing 5,395,087 pounds. The audit of their records revealed a harvest of 5,352,371 pounds or a difference of 0.79 percent.

Last year the fishermen selected for audit reported harvesting 1,302,476 pounds of lobster on their 1989 catch reports. The audit of their actual records showed total landings of 1,308,019 pounds, a difference of 5,543 pounds or 0.43 percent. Thirteen of the randomly selected fishermen have yet to respond to the audit request. Figure 13 shows the distribution of the percent difference between the selected fishermen's reported catch and their audited records. In general, reported landings are very well documented by dealer receipts and/or personal records, especially by the so-called "high-liners" in the fishery. Most of the lobstermen have had these licenses for several years and know what is required in terms of reporting their fishing activities. They also know that their reported information is kept strictly confidential and published only in aggregate form. These factors all contribute to a fairly conscientious and responsible reporting constituency.

Figure 13. Massachusetts Commercial Lobster Fishery;
Frequency Distribution of the Percent Difference Between
Fishermen's Reported Catch and Their Audited Records



Number of Fishermen Audited = 150

Figure 14. Coastal Map of Massachusetts
Showing Statistical Reporting Areas (Counties)



A. Essex

C. Norfolk

E. Bristol

G. Dukes

B. Suffolk

D. Plymouth

F. Barnstable

H. Nantucket

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